Small Business Innovation Research/Small Business Tech Transfer

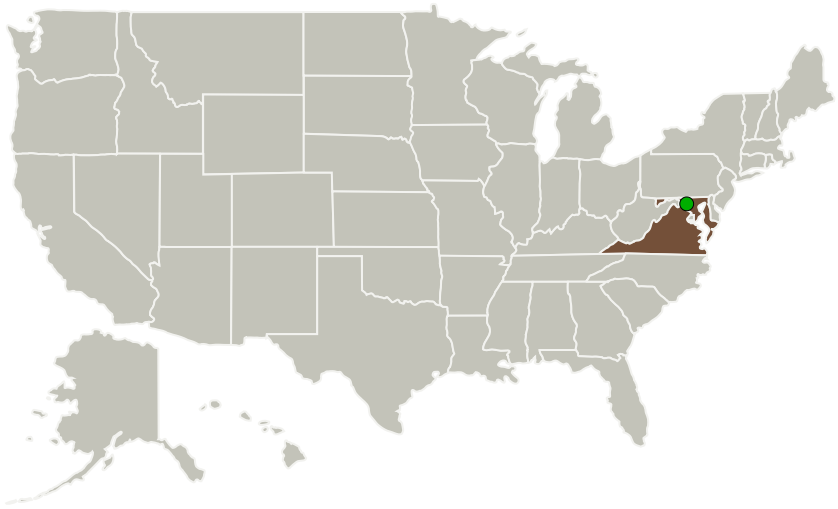
Space-Qualifiable High Reliability Frequency-Stabilized CW Laser Source, Phase II

Completed Technology Project (2010 - 2012)

Project Introduction

We propose the SBIR Phase II effort to develop and space-qualify a 1.06 micron high reliability frequency-stabilized CW laser source that fully satisfies the requirements of this SBIR opportunity (Lidar System Components) . Our recommended approach builds on extensive experience developed through numerous spaceflight programs, and using single frequency laser sources in the near infrared, both for aerospace and commercial applications. Our technical approach is based on emerging technology, spawned by the telecom industry that is only now reaching the maturity level where space qualification can be undertaken. NASA requires highly reliable frequency stabilized laser sources for a variety of ongoing and planned missions including LISA and GRACE. The Phase II program plans to place emphasis on the material selection, design verification and radiation testing to the proposed space laser. The proposed Phase II effort seeks to demonstrate the feasibility to space-qualify a high reliability frequency-stabilized laser source, to advance current space-based laser to TRL 6 level and to present a clear path to build a space-based ultrastable laser source for a 10 year space mission.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Fibertek, Inc.	Lead Organization	Industry	Herndon, Virginia
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Project Transitions

March 2010: Project Start

July 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139481)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Fibertek, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

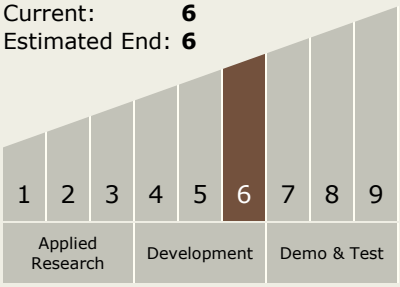
Carlos Torrez

Principal Investigator:

Ti Chuang

Technology Maturity (TRL)

Start: **6**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System